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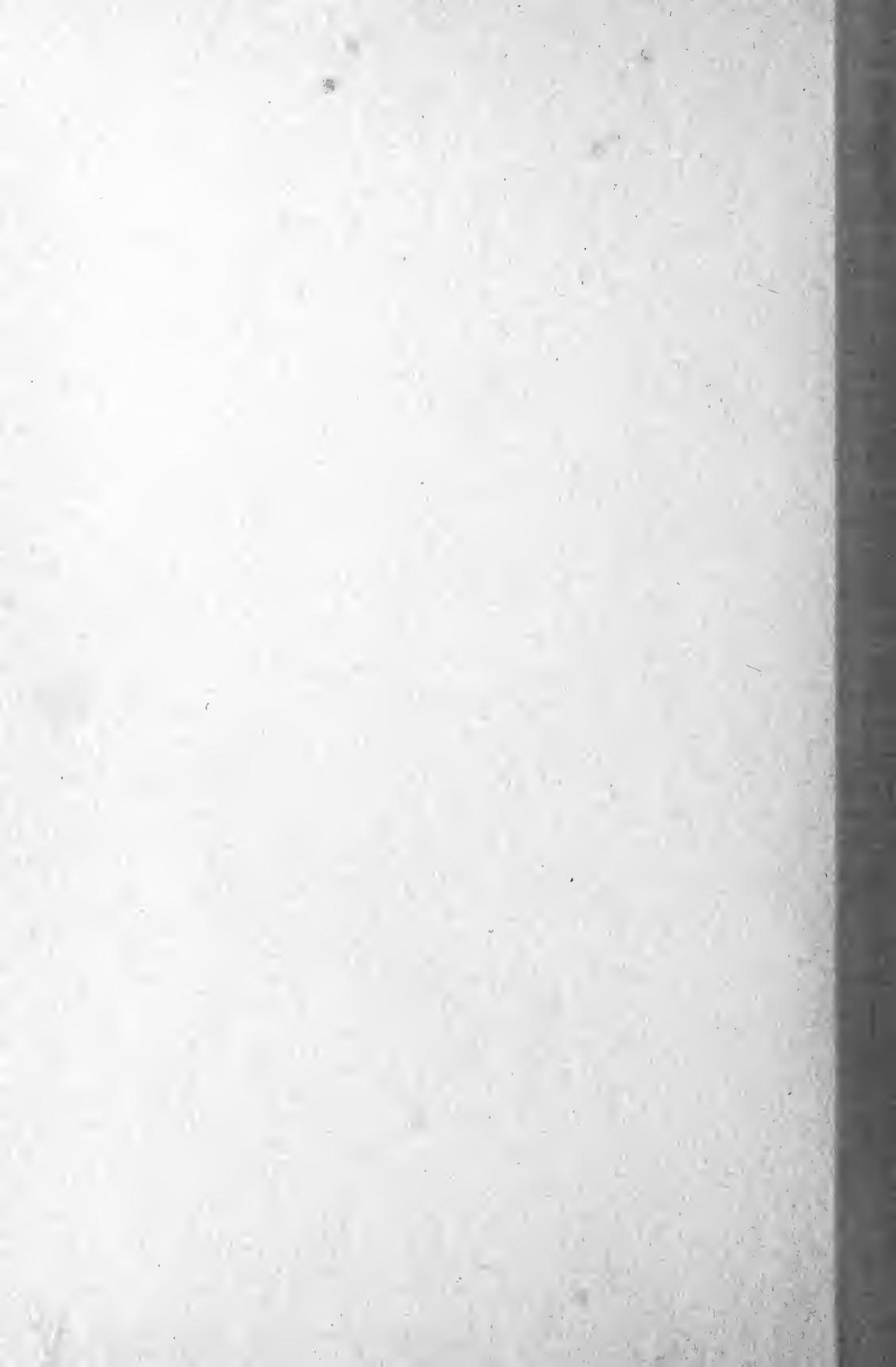
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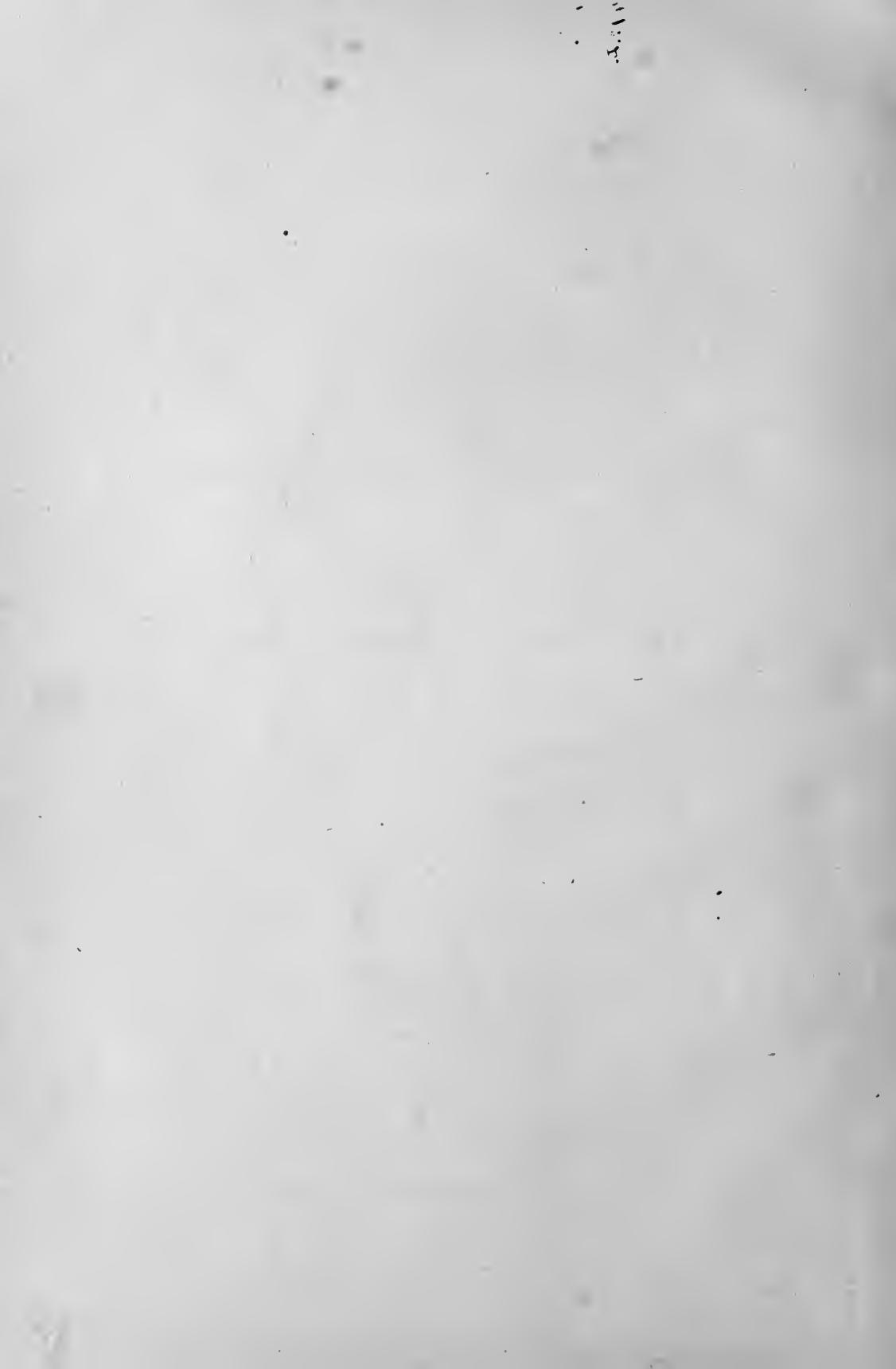
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IMPROVED SCHOOL ARCHITECTURE:

SHOWING

Plans for School Rooms

WITH

WINDOWS ON THREE SIDES,

AND WITHOUT LOSING ECONOMY OF SPACE IN THE
BUILDING.

30

BY

ADOLPHUS FREDERIC MARTHENS.



PITTSBURGH:
1873.

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Improved School Architecture.



SCHOOL ARCHITECTURE has fully kept pace, in grandeur of style and extravagance of outlay, with the rapidly increasing wealth of the people of our country; but in some of the essentials of comfort and health it is yet greatly deficient. Perhaps a reason for this may be, that architects are never teachers, and are seldom if ever identified with educational interests to such a degree as to become imbued with a feeling of the real needs of great school buildings. Their delight is in massive piles, and they revel among elevations where hundreds of feet on each front give scope to their genius. Thus they frequently rear structures of such magnificent proportions as to necessitate imperfectly lighted interiors; forgetting that the "dim, religious light" of the poet, is unfitted for the active employments of life, and hardly even suited for the church, of which he sung.

The author and designer of the following pages has had his attention drawn towards schools and school accommodations, for several years past; and all of his examinations, whether of the houses themselves, or the plans on paper, where the former were inaccessible, have only the more fully convinced him that the best *exterior* form has never yet been attained, and consequently that the *interior*

is necessarily defective in some essential particulars, the chief of which is undoubtedly that of an abundant and evenly distributed light; a quality which ought to obtain in all school houses. Out of a great number of plans, from the least pretentious up to those of the largest and costliest structures, in only rare instances have I found rooms with windows on two *opposite* sides, in any but the smallest houses. The finest of them may be said indeed to be invariably made up of rooms either lighted only from one side, or else from two adjoining sides, in the proportion of two of the latter to one of the former.

Some of the most popular educational institutions of England, such as Eton and Winchester colleges, and the schools of Rugby, Christ Church, Merchant Taylors, Harrow, &c., have their windows placed on two opposite sides; which is certainly better for diffusion of light than our method; yet those school rooms, excellent as they are, cannot be ranked as perfect when compared with a house the rooms of which are lighted by windows on THREE sides, through which the direct rays of light stream in.

The object of this publication is to call attention to a NEW PLAN for School Houses, which accomplishes this great result. That this is a *new* plan, no one may doubt, for, although in exceptional cases, and as it were, by chance, rooms lighted from three sides may be found in school houses, yet, on putting the question recently to an enthusiastic educator, a gentleman of high intelligence, who has visited more than three hundred schools, including all of the best in the country, he assured me that none of them were lighted from three sides of a square.

The elaborate and expensive but usually inefficient arrangements for ventilation, which are now so lavishly provided, may be entirely dispensed with, in houses built on this plan, as a movement of the windows on opposite sides of the rooms can always more certainly and promptly effect the object; and even the whole house, right through, can be thus aired.

Another advantage is, that the direct light of the sun cannot be hindered from peeping into these rooms during some part of the day, giving life and health to the little learners, and invigorating the teacher as well.

The Plan, as will be seen, is drawn for a three-storied house, capable of accommodating eight hundred to a thousand pupils, (and more than this ought not to be under one roof;) and with an Exhibition Hall of proportions ample for all school uses. But one of the excellent points in it is its adaptability to smaller numbers of scholars. The general plan remains all the same, whether the school be large or small to begin with, and shows no lopsidedness in front, when only partially built. For example: the first story, with its large school rooms, besides directors' room, with vault for records, and other apartments, and on the second floor the three front rooms, with the centre part of the house built up to its full height, for the Hall, would give eight school rooms, leaving yet seven out of the plan, while the front appearance would not be at all unsightly. When the demand for more room would arise, it could be met by adding the two back rooms of the second story, or those two and the two front rooms of the third; and, finally, as population increased, the plan in its full propor-

tions could be erected—but all the while, whether in its partial or its complete state, light, sunshine, and ventilation, would always be available.

In publishing this New Plan for school buildings, I do not intend to interfere with the occupation of architects, (a highly meritorious class of artists,) any further than to exhibit to the public and to School Boards such a valuable improvement as shall demand acceptance. It might be supposed that this plan would require a much larger surface of ground than the present style of school buildings; but so far is this from being the case, that it actually takes less ground for a specific amount of seating room than that of any other with which I have compared it. As I said before, no other interference with architects is designed; and elevations, cellar plans, roofs, arrangements for heating, including necessary smoke and hot air flues, &c., and the specifications necessary for the proper erection of the house, I willingly leave to them.

A few observations in regard to interior arrangements: Each of the three stories ought to be about fourteen feet to the ceiling, and if the hall were elevated to eighteen or twenty feet, it would be all the better. The walls of the rooms ought to be as free from angles as possible, for the convenience of blackboard surface. The blackboard itself ought to occupy a space of three feet nine inches around the walls, beginning at a distance of fifteen inches from the floor, and ascending to a height of five feet. The teacher's desk ought to be invariably situated as indicated in the plans, so as to have the scholars' faces turned towards the only wall which is unpierced by windows. The windows

ought to be placed high enough to be clear of the black-board, (five feet from the floor, as above stated;,) and they ought to be provided with inside shutters, but not of the venetian sort. Let them be simply panelled, and in four parts, each part running in one piece from bottom to top, for convenience of handling. When made in this way they will be much cheaper; much more convenient; much easier kept clean and in repair; and, by the exercise of a little judgment, quite as effective in shading the room.

There ought to be a comfortable room in the basement, for the janitor, where he should always be found during school hours, except when necessarily engaged in some other part of the house. A dwelling for a janitor's family in the basement, is a nuisance. The cooking of coarse and unsavory food, during school hours, often sends up offensive odors, and unfits the scholar for proper attention to his studies. Other reasons also might be given why it is very undesirable to have a family quartered on the premises.

Explanation of the Plans.

First Floor.—Size of building, 84 by 111 feet. Principal front, two school rooms, each 26 by 35 feet, with three windows in front, two at the side, and two in the rear, where they open out upon an area twenty-two feet wide; affording abundant space for the ingress of light and air. The rooms have wardrobes attached, $5\frac{1}{2}$ by 6 ft. Between these two rooms is a vestibule, $5\frac{1}{2}$ by 35 ft., open in front, and spanned with three arches, communicating directly

with both of the rooms. On passing through the centre of the vestibule you enter the passage-way, 9 feet wide, near the front of which, on the left hand, is the directors' room, 12 by 12 ft., with two windows in front, and a fire-proof vault in the rear, $4\frac{1}{2}$ by 6 ft. This is a most important adjunct, and ought to be introduced into every public-school house. As it is not to be supposed that the people will ever willingly fall back again into ignorance, after having once tasted the joys of education, our school systems must necessarily continue through all time; the preservation of the records, therefore, becomes a matter of great interest, destined to increase with the lapse of years and centuries.

Immediately opposite to the door of the directors' room is a room 12 by 15 ft., which may be used as a principal's and writing teacher's room. Back of this, and fronting on the transverse passage, are two closets for the use of the teachers. In the rear of the directors' room there is a small room, convenient for keeping towels, soap, hose, brushes, &c., in charge of the janitor; and adjoining to it, but facing on the other passage, are stationary wash basins.

This brings us into the transverse passage, which is $22\frac{1}{2}$ feet wide, and contains the two stairways and the wardrobes; the stairs occupying 10 feet of the width. This passage may be ranked as a secondary entrance way, although the doors are equally wide with those of the principal front. To the rear of this wide passage are two more rooms of the same size as those in the front, and one between them, of 30 by 35 feet, which, although lighted

from three sides, is not lighted from three quarters of the compass.

Second Floor.—Five rooms, each 26 by 35 feet, four of which have the admirable arrangement for light, while a fifth one, occupying the front centre, has light only from one side, and the centre one in the rear, (being in shape like the corresponding one on the first floor,) has the same degree of light. Four of these rooms might have had wardrobes just like those of the first floor, but as it would have been impossible to provide in the same way for the other two, it was deemed best, for the sake of symmetry, to erect wardrobes in two corresponding angles of each centre room.

Third Floor.—Four more rooms, same size as those below, and like them in every respect. Wardrobes for all. Passage ways five feet wide, running parallel with the exhibition hall, lead to these school rooms. They are the only rooms in the house the doors of which are not reached by the direct rays of light through the windows, but a skylight over the passage corrects the deficiency.

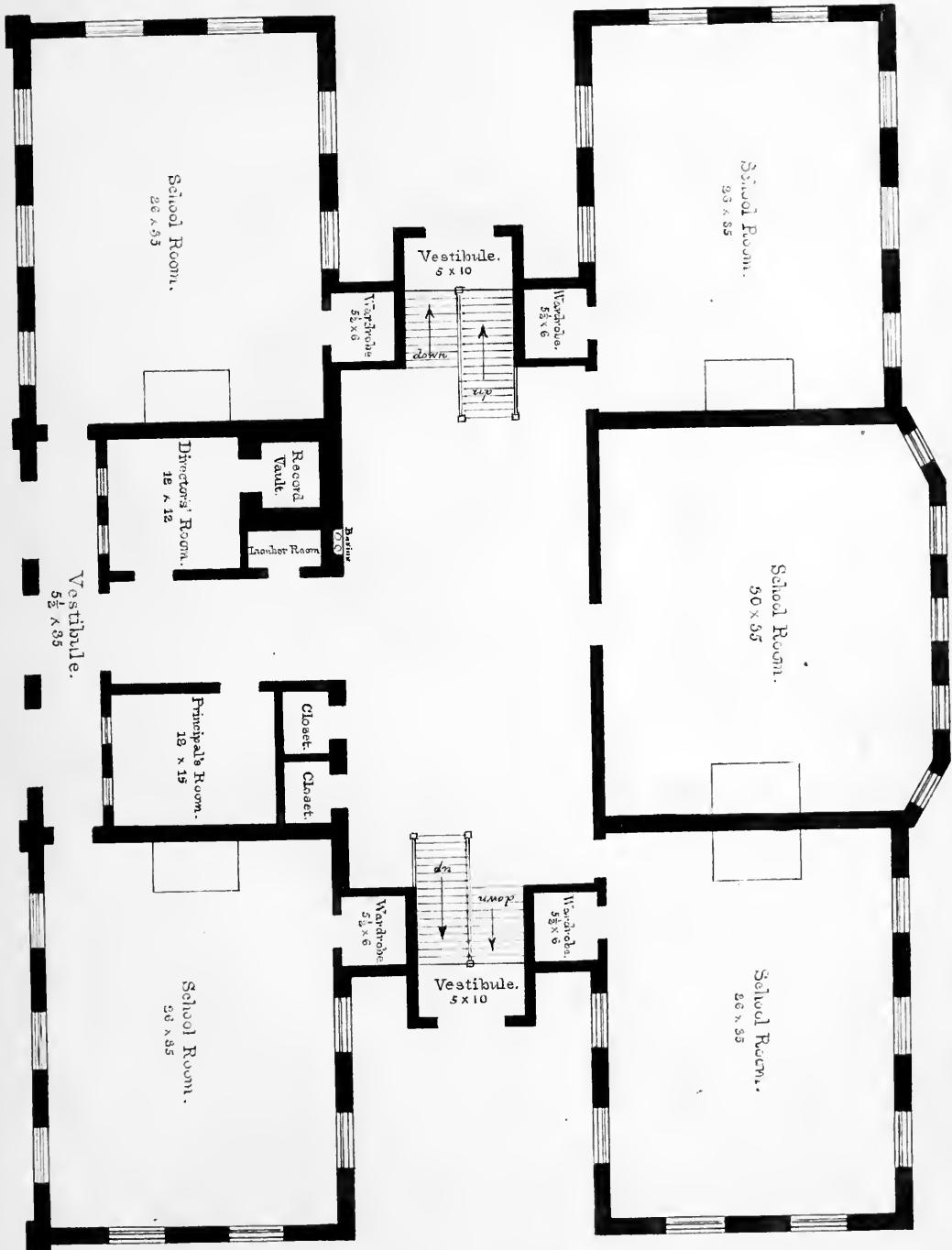
The exhibition hall, 35 by 81 feet, is entered from both stairways, through double doors. There are also two secondary entrances to it, through the back school rooms; in addition to which there are still two others through the front rooms, leading to the stage.

The sizes of the rooms, &c., although exactly given on the plans, can of course be varied, but the general proportions ought to be preserved.

The plans of these three floors are believed to combine more valuable points for convenient and healthful common

school instruction, than have ever yet been embraced under one roof; and the designer feels free to make this broad assertion because he has studied the subject pretty thoroughly, and has obtained to every thing here suggested the assent of his judgment. Yet, though he has specified a variety of matters in the way of detail, the chief thing, in his opinion, is the arrangement of the ground plan to such a shape as to afford light to nearly all the rooms from three sides of a square, coupled with the means of ready and thorough ventilation.

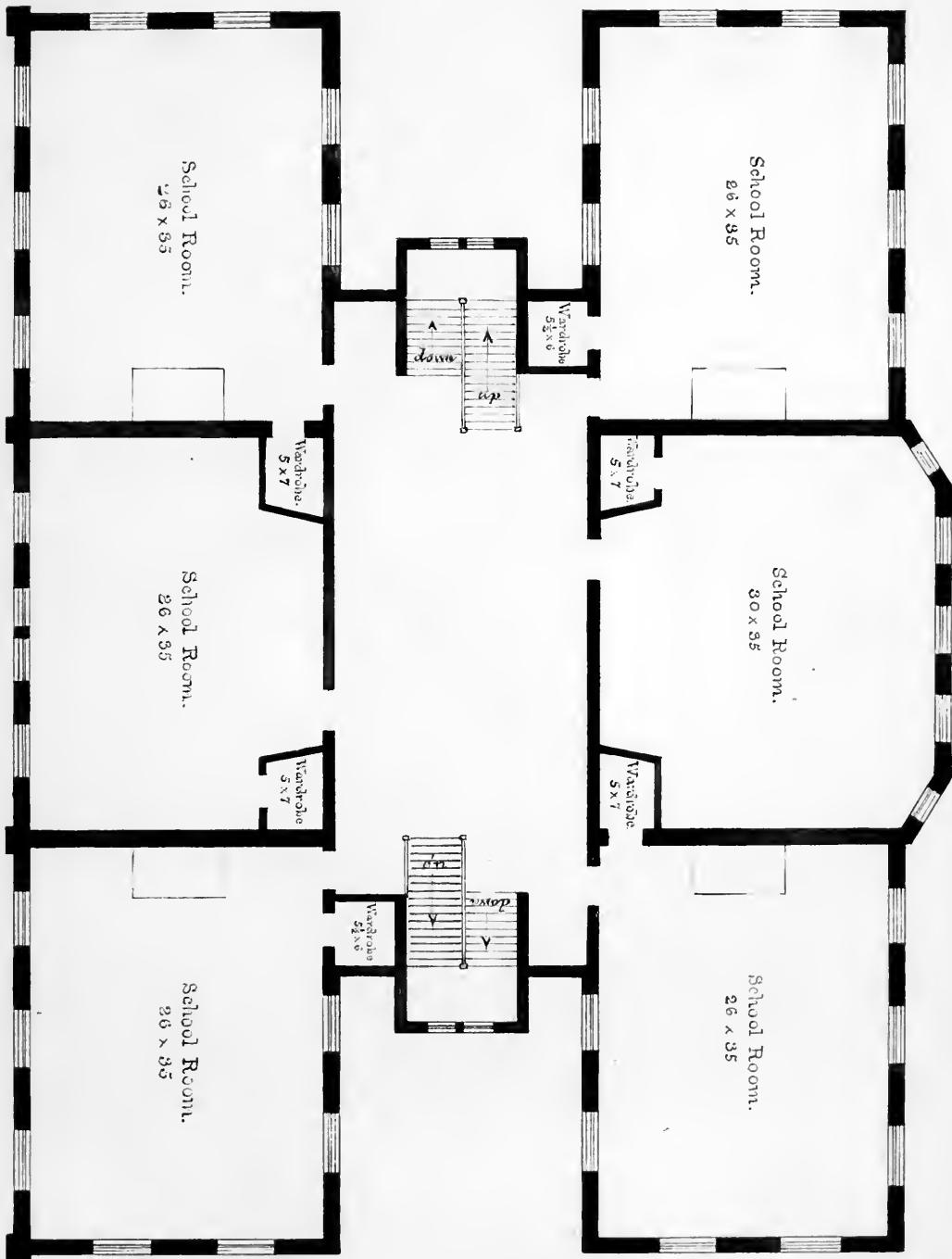
NOTE.—Although the principal walls on the Plans are represented as of the uniform thickness of eighteen inches, yet practically it is unnecessary to make them more than thirteen inches thick, from the floor of the third story.



FIRST FLOOR.



SECOND FLOOR.

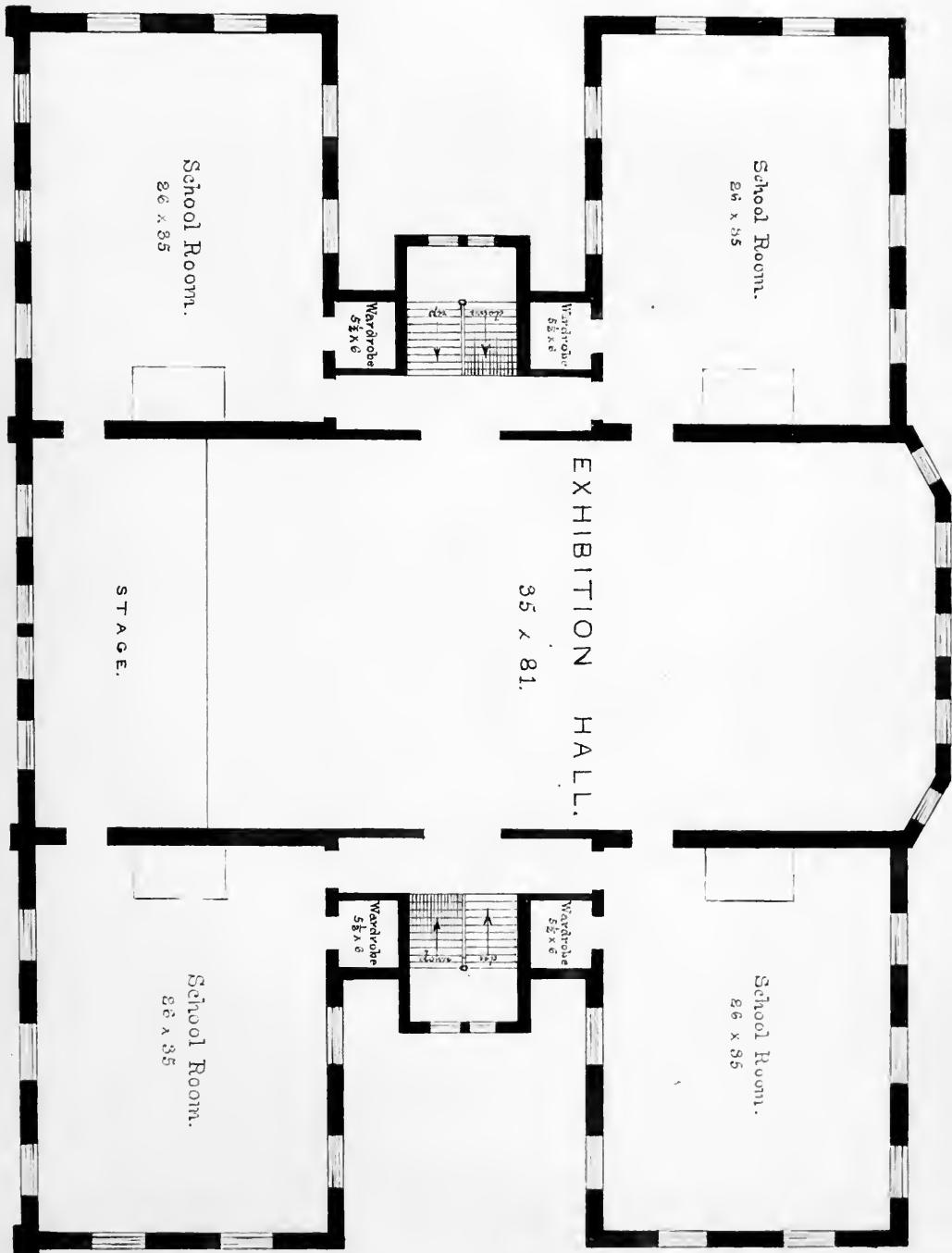


Scale of $\frac{1}{4}$ of an inch to a foot.



THIRD FLOOR.

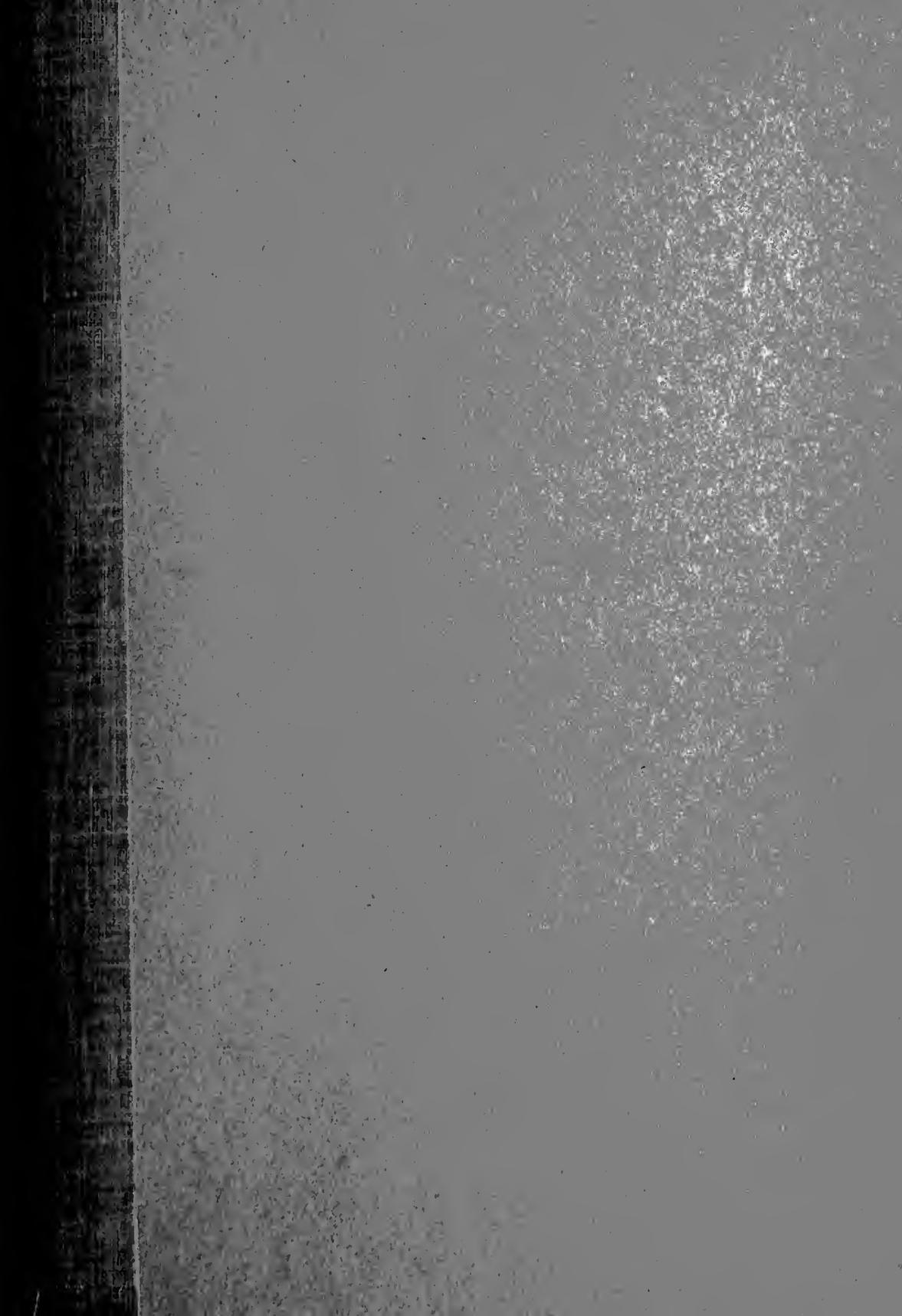
Scale of $\frac{1}{8}$ or an inch to a foot.











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